

PATENT APP. NO. 10/673,344
ATTY. DOCKET NO. 65406.000717
AMENDMENT IN RESPONSE TO 12/8/04 OFFICE ACTION

III. REMARKS

A. Status of the Claims

Claims 1-68 are pending in the application, of which claims 19-36 and 53-68 were withdrawn from consideration. Claims 1-18 and 37-52 stand rejected by the Examiner. By this amendment claims 18 and 52 are canceled. No new matter is added.

B. Claim Rejections Under 35 U.S.C. § 102

Claims 18 and 52 stand rejected under 35 U.S.C. § 102(a) as being anticipated by the allegedly admitted prior art, under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,659,538 to Stuebe, *et al.*, and under § 102(b) as being anticipated by U.S. Patent No. 5,897,541 to Uitenbroek. By this amendment, claims 18 and 52 have been canceled, thereby obviating the basis for this rejection.

C. Claim Rejections Under 35 U.S.C. § 103

1. Claims 1, 2, 4-10, 13, 14, 37, 38, 40-46 and 49

Claims 1, 2, 4-10, 13, 14, 37, 38, 40-46 and 49 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 5,659,538 to Stuebe, *et al.*, ("Stuebe") and U.S. Patent No. 5,597,642 to Schleinz *et al.* ("Schleinz"). The Applicant respectfully traverses this rejection and requests reconsideration and allowance of the pending claims in view of the following remarks.

Three criteria must be met to establish a *prima facie* case of obviousness: (1) there must be some suggestion or motivation to modify the reference or to combine reference teachings, (2) there must be a reasonable expectation of success, and (3) the prior art references must teach or suggest all the claim limitations. *See* MPEP § 2142 *et seq.* Applicant respectfully submits that the prior art of record fails to teach or suggest all of the features of the pending claims and therefore there is no *prima facie* case of obviousness.

With respect to claims 1 and 37, the Office Action alleges that "Stuebe discloses a generic method for correlating multiple processes in the manufacture of absorbent articles such as diapers." Office Action at page 4. The Office Action further alleges that although the preferred embodiment is directed to detection of the positioning of fastening tabs on a web relative to the final cut of the article, "Stuebe discloses that the concept can be generalized to any two features of the diaper web, including both the printing and the cutting (see column 3, lines 35-40). Therefore Stuebe discloses [] the line speed target machinery and phase target machinery as claimed." Office Action at page 5. However, Applicant respectfully submits that regardless of the work being performed on the web, the registration control system of Stuebe involves the detection and control relative to a *component on a moving web*, rather than sensing signals from *the machinery itself* and controlling a process relative to those signals, as recited in the pending claims.

For example, the registration control system of Stuebe includes a UV or IR luminescence scanner (26), "selected to detect at least one preselected feature of each diaper 20 on the web 12 as it passes beneath the scanner 26." *Id.* at col. 3, lines 53-56 and 64-66. "The scanner 26 produces a detection signal when it detects a change in the light emitted by, reflected by, absorbed by, or transmitted through the preselected feature." *Id.* at col. 4, lines 2-5. Thus, the scanner is a visual detection system designed to detect the *presence of a component* located on diaper (20) on moving web (12). The scanner is *not* designed to detect the *line speed* of the manufacturing process, especially not from a target machinery component. In fact, Stuebe does not disclose *any* means for detecting the line speed of the machine.

Moreover, Stuebe does not disclose a registration system that is capable of setting the angular position of one machine component relative to the angular position of another *machine component*. The purpose of the registration system of Stuebe is to maintain the final knife cut (33) of the diaper (20) at a constant distance relative to the location of the fastening tabs (30) on the diaper (20). When the machine initially starts,

an operator manually adjusts angular position of the knife (14) "until the location of the final cut 33 (Fig. 2) is in the proper location with respect to the fastening tabs." Stuebe at col. 4, lines 17-21. Once the target position of the tabs and knife cut is set, the operator switches the system to "automatic" and the registration system holds the position of the knife relative to the fastener tab location. *Id.* at col. 4, lines 21-46. In automatic mode, the position resolver (32) of the registration system records the target angular position of the knife (14), at the time that the scanner (26) detects the position of the element located on diaper (20) *on the moving web* (12). *Id.* at col. 4, lines 21-32. Thereafter, each time the scanner detects the fastener tab *on the moving web* (12), the position resolver (32) reads the angular position of the knife (14), and a controller advances or retards the knife (14) as necessary if it deviates from its target angular position. *See id.* at col. 4, lines 32-45 and Fig. 3. Thus, the angular position of the knife (14) is set and adjusted relative to a component of the moving web, and is *not set relative to another machine component*.

Schleinz is insufficient to remedy the deficiencies of Stuebe. As the Office Action alleges, "Schleinz discloses that it is known to use rotary cylinder (i.e., graphic applicator) based printing mechanisms in diaper and undergarment manufacturing." Office Action at page 5. However, Schleinz does not disclose any means for detecting the line speed of a manufacturing process, or any means for controlling the angular position of the printing cylinder *relative to another machine component* in a manufacturing process.

In contrast to Stuebe and Schleinz, the Applicant has found typical indexing methods insufficient for registering the position of a printer cylinder as recited in the pending claims. Unlike typical machine components, a printer cylinder must continue to rotate when a manufacturing process shuts down. *See Specification* at page 25. In order to continue rotating, the printer disengages from the web on which it was printing, and unlocks from the line speed reference signal. "It will be seen that, because the printer 85 is disengaged from the rest of the machinery during the shutdown mode

and the print cylinder 86 continues to rotate, the phase of the print cylinder 86 can not be fixed relative to the other machinery components by the same indexing method [used in a typical manufacturing line]." *Id.* at pages 25-26. However, the Applicant has discovered that a line speed reference signal in combination with a phase difference signal is "sufficient to provide a high-speed continuous supply of properly printed absorbent articles 10 without requiring feedback control systems to continuously measure the location of the graphic 21." *Id.* at page 16. First, the line speed reference signal "is used to operate the printer 85 at the same product speed as the rest of the machinery." *Id.* "The second signal used by the printer controller 93, the phase difference signal, is used to ensure that the graphics 21 are properly located [on the absorbent article.]" *Id.* at page 24. Specifically, the Applicant discovered that

a phase difference signal can be used to overcome the inability to permanently index the print cylinder 86 relative to the rest of the manufacturing line. In general terms, the printer controller 93 uses the phase difference signal to determine the angular position of one of the machinery components, compares this angular position to the instantaneous position of the print cylinder 86 to determine their actual phase difference (*i.e.*, the angle between the printer and the component), and then accelerates (advances) or decelerates (retards) the print cylinder 86 to change the actual phase difference to be equal to a user-defined predetermined phase angle

Id. at page 26. Accordingly, pending claims 1 and 37 recite a method for incorporating graphics into an absorbent article, where the method includes sensing a line speed reference signal from a line speed target machinery component; rotating the print cylinder at a predetermined speed, based on the line speed reference signal; sensing a phase difference signal from a phase target *machinery component*; and setting an actual print cylinder phase angle, based on the phase difference signal.

The method of the present invention provides distinct advantages over the prior art method shown in Stuebe. For example, the measurement of the angular position of a printer cylinder under Stuebe is triggered by the detection of a fastening tab on the moving web. If a fastening tab is omitted (as may happen when a defective article is

made) then no measurement is taken. If the fastening tab is omitted for a period of time during which the line speed changes, then the position of the graphics may shift drastically out of registration until the next fastener tab is detected, at which point, the controller may respond with a drastic acceleration or deceleration of the printing cylinder. *See, e.g.,* Stuebe, Fig. 3. Moreover, because of variations in the moving web (such as when the web stretches and contracts), the location of the fastening tab will have some variation in the processing direction. As such, the frequency of the triggering event (the detection of the fastener tab) will constantly change, introducing a certain amount of data variation into the detection and control process. This requires the controller to employ a more complex control algorithm to differentiate between normal web variation and actual changes in the process. *See id.* Unless this additional variation caused by the web fluctuations is somehow accounted for, it will be passed on to the print cylinder controller, which will attempt to follow these variations by performing minute speed or phase corrections. Thus, not only does this type of prior art system require a more robust control algorithm to follow these fluctuations (or more complicated control filters to filter out the fluctuations), but it may also result in greater power consumption as the servo motor driving the print cylinder must make many unnecessary corrections by accelerating and decelerating the print cylinder to match the web stretch fluctuations. Because the method recited in the pending claims relies upon detection of a signal from another machine component, which is less variable than a moving web, the claimed method is simpler and more reliable than the method of Stuebe for the purpose of detecting and responding to actual changes in the manufacturing process.

In summary, neither Stuebe nor Schleinz teach or suggest all of the claimed features of the pending claims 1 or 37, because they fail to teach or suggest (1) a means for sensing the line speed reference signal from a line speed target machinery component; (2) rotating a print cylinder at a predetermined speed, based on the line speed reference signal; (3) sensing a phase difference signal from a phase target

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machinery component; and (4) setting an actual print cylinder phase angle, based on the phase difference signal. Thus, Applicant respectfully submits that claims 1 and 37 are patentable over Stuebe and Schleinz. Claims 2, 4-10, 13 and 14 depend from claim 1 and claims 38, 40-46 and 49 depend from claim 37, so Applicant respectfully submits that for at least the same reasons given above, these claims are also patentable over Stuebe and Schleinz. Therefore, the Applicant respectfully requests that the Examiner reconsider and withdraw this rejection with respect to claims 1, 2, 4-10, 13, 14, 37, 38, 40-46 and 49.

2. Claims 2-3 and 38-39

Claims 2-3 and 38-39 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Stuebe and Schleinz, and further in view of the allegedly admitted prior art. The Office Action alleges that "the admitted prior art discloses that the substrate comprises a backsheet web, and further discloses providing a supply of absorbent pads, a topsheet web, joining the topsheet web to the backsheet web with the absorbent pads located therebetween to form an absorbent core assembly." Office Action at page 8. However, the admitted prior art is insufficient to remedy the aforementioned deficiency of Stuebe and Schleinz, namely that they fail to teach or suggest (1) a means for sensing the line speed reference signal from a line speed target machinery component; (2) rotating a print cylinder at a predetermined speed, based on the line speed reference signal; (3) sensing a phase difference signal from a phase target machinery component; and (4) setting an actual print cylinder phase angle, based on the phase difference signal. Thus, Applicant respectfully submits that claims 2-3 and 38-39 are patentable over Stuebe, Schleinz, and the allegedly admitted prior art. Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw this rejection with respect to claims 2-3 and 38-39.

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3. Claims 11, 12, 15, 47 and 48

Claims 11, 12, 15, 47 and 48 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Stuebe and Schleinz and further in view of U.S. Patent No. 6,075,178 to La Wilhelm *et al.* ("La Wilhelm"). The Office Action alleges that "Wilhelm discloses that it is known to utilize wetness indicators and decorative graphics in diaper manufacture." Office Action at page 8. However, La Wilhelm is insufficient to remedy the aforementioned deficiency of Stuebe and Schleinz, namely that they fail to teach or suggest (1) a means for sensing the line speed reference signal from a line speed target machinery component; (2) rotating a print cylinder at a predetermined speed, based on the line speed reference signal; (3) sensing a phase difference signal from a phase target machinery component; and (4) setting an actual print cylinder phase angle, based on the phase difference signal. Thus, Applicant respectfully submits that claims 11, 12, 15, 47 and 48 are patentable over Stuebe, Schleinz, and La Wilhelm. Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw this rejection with respect to claims 11, 12, 15, 47 and 48.

4. Claims 16-17 and 50-51

Claims 16-17 and 50-51 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Stuebe and Schleinz and further in view of U.S. Patent No. 5,003,876 to Harrison *et al.* ("Harrison"). The Office Action alleges that "Harrison discloses that it is known to disengage a printer (i.e., graphic applicator), during the detection of a shutdown (operation of the ink on/off switch) and rotate at an idle speed, and then startup from an idle speed." Office Action at page 9. However, Harrison is insufficient to remedy the aforementioned deficiency of Stuebe and Schleinz, namely that they fail to teach or suggest (1) a means for sensing the line speed reference signal from a line speed target machinery component; (2) rotating a print cylinder at a predetermined speed, based on the line speed reference signal; (3) sensing a phase difference signal from a phase target machinery component; and (4) setting an actual print cylinder phase angle, based on the

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phase difference signal. Thus, Applicant respectfully submits that claims 16-17 and 50-51 are patentable over Stuebe, Schleinz, and Harrison. Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw this rejection with respect to claims 16-17 and 50-51.

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IV. CONCLUSION

The Applicant respectfully submits that the application is in condition for allowance. Applicant believes that no fees are necessary in connection with the filing of this document. In the event any fees are necessary, please charge such fees, including fees for any extensions of time, to the undersigned's Deposit Account No. 50-0206. Should any outstanding issues remain, the Examiner is invited to telephone the undersigned at the number listed below.

Respectfully submitted,
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